

WHAT IS CLAIMED IS:

- 1     1.     A flexible switch, comprising:  
2             an adhesive sheet;  
3             a circuit member, provided on the adhesive sheet, and having an  
4     electrode;  
5             a spacer sheet, provided on the circuit member, and having a through  
6     hole situated so as to correspond to the electrode on the circuit member; and  
7             a front sheet, provided on the spacer sheet, and having a projected  
8     portion, in which a contact portion provided on an inner face of the projected  
9     portion is brought into contact with the electrode through the through hole in  
10    the circuit member when the projected portion is depressed; and  
11            wherein at least one of the adhesive sheet, the circuit member, the  
12    spacer sheet, and the front sheet has flexibility.
  
- 1     2.     The flexible switch as set forth in claim 1, wherein a form of the  
2     projected portion is shaped into a hemisphere.
  
- 1     3.     The flexible switch as set forth in claim 1, further comprising an  
2     external connection member, for electrically connecting the circuit member to  
3     an external member, and the external connection member provided on the  
4     circuit member.
  
- 1     4.     The flexible switch as set forth in claim 3, wherein the external member  
2     is at least one of an automotive component and an automotive accessory.

1 5. The flexible switch as set forth in claim 3, wherein the external  
2 connection member includes at least one of an edge connector terminal and a  
3 connector.

1 6. The flexible switch as set forth in claim 4, wherein the external  
2 connection member includes a wire connection circuit portion.

1 7. The flexible switch as set forth in claim 1, wherein the circuit member is  
2 provided on a first face of the adhesive sheet; and  
3 wherein a second face of the adhesive sheet opposed to the first face  
4 is covered with a release paper sheet.

1 8. The flexible switch as set forth in claim 1, wherein the front sheet is  
2 transparent.

1 9. The flexible switch as set forth in claim 1, wherein the front sheet is  
2 provided with an compatible external appearance portion; and  
3 wherein the compatible external appearance portion is provided on at  
4 least one of an inner face and an outer face of the front sheet.

1 10. The flexible switch as set forth in claim 1, wherein at least one flat  
2 member situated so as to correspond to the through holes is provided on the  
3 front sheet.

1 11. The flexible switch as set forth in claim 9, wherein the front sheet is

2 transparent; and  
3 wherein the compatible external appearance portion, formed on the  
4 inner face of the front sheet, is at least one of a printed portion and an  
5 ornamented portion.

1 12. The flexible switch as set forth in claim 9, wherein the compatible  
2 external appearance portion includes a coating layer made of a synthetic resin;  
3 and  
4 wherein the coating layer is formed on the projected portion of the front  
5 sheet.

1 13. The flexible switch as set forth in claim 9, wherein the compatible  
2 external appearance portion includes a sheet cover member and a depressing  
3 portion;  
4 wherein the sheet cover member covers the outer face of the front  
5 sheet;  
6 wherein the depressing portion is integrally formed with the sheet  
7 cover member; and  
8 wherein the projected portion is accommodated in an inner side of the  
9 depressing portion.

1 14. The flexible switch as set forth in claim 9, wherein the compatible  
2 external appearance portion includes a key top member and a cover member;  
3 wherein the key top member depresses the projected portion when the  
4 key top member is depressed; and

5            wherein the cover member covers the outer face of the front sheet  
6 while holding the key top member.

1    15.     The flexible switch as set forth in claim 1, wherein the flexible switch is  
2 attached on at least one of automotive components, and

3            wherein the automotive mounting portions include a face of a panel, a  
4 recess portion in the panel, an opening-closing member, a front face of an  
5 accessory, and a steering wheel.

1    16.     The flexible switch as set forth in claim 1, wherein the front sheet  
2 serves for a bezel.

1    17.     A method for producing a flexible switch, comprising the steps of:

2            providing an adhesive sheet, a circuit member having an electrode,  
3 and a spacer sheet having a through hole situated so as to correspond to the  
4 electrode on the circuit member, used respectively as common members; and

5            providing a first compatible front sheet having a first projected portion  
6 and a first external appearance;

7            providing a second compatible front sheet having a second projected  
8 portion and a second external appearance different from the first external  
9 appearance;

10           selecting either the first compatible front sheet or the second  
11 compatible front sheet in accordance with a design change and a model  
12 change;

13           mounting the circuit member on the adhesive sheet;

14 mounting the spacer sheet on the circuit member; and  
15 mounting either the first compatible front sheet or the second  
16 compatible front sheet which is selected in the selecting step accordance with  
17 the design change and the model, on the spacer sheet.

1 18. A flexible switch, comprising:  
2 an adhesive sheet;  
3 a first circuit member, provided on the adhesive sheet, and having a  
4 first electrode;  
5 a first spacer sheet, provided on the first circuit member, and having a  
6 first through hole situated so as to correspond to the first electrode on the first  
7 circuit member;  
8 a second circuit member, provided on the first spacer sheet, and  
9 having a second electrode situated so as to correspond to the first electrode of  
10 the first circuit member;  
11 a second spacer sheet, provided on the second circuit member, and  
12 having a second through hole situated so as to correspond to the first  
13 electrode of the first circuit member; and  
14 a front sheet, provided on the second spacer sheet, and having a  
15 projected portion situated so as to correspond to the second electrode of the  
16 second circuit member,  
17 wherein the second circuit member is depressed by the projected  
18 portion through the second through hole so as to bend the second circuit  
19 member when the projected portion is depressed, so that the second electrode  
20 on the second circuit member is brought into contact with the first electrode

21 through the first through hole; and  
22 wherein at least one of the adhesive sheet, the first circuit member, the  
23 first spacer sheet, the second circuit member, the second spacer sheet, and  
24 the front sheet has flexibility.

1 19. The flexible switch as set forth in Claim 18, wherein the second circuit  
2 member has an elastic member situated so as to correspond to the first  
3 electrode of the first circuit member; and

4 wherein the elastic member is depressed together with the second  
5 circuit member by the projected portion when the projected portion is  
6 depressed.

1 20. The flexible switch as set forth in claim 18, wherein a form of the  
2 projected portion is shaped into a hemisphere.

1 21. The flexible switch as set forth in claim 18, further comprising an  
2 external connection member, for electrically connecting the first circuit member  
3 to an external member, and the external connection member provided on the  
4 first circuit member.

1 22. The flexible switch as set forth in claim 18, further comprising an  
2 external connection member, for electrically connecting the second circuit  
3 member to an external member, and the external connection member provided  
4 on the second circuit member.

1 23. The flexible switch as set forth in claim 21, wherein the external  
2 member is at least one of an automotive component and an automotive  
3 accessory.

1 24. The flexible switch as set forth in claim 22, wherein the external  
2 member is at least one of an automotive component and an automotive  
3 accessory.

1 25. The flexible switch as set forth in claim 21, wherein the external  
2 connection member includes at least one of an edge connector terminal and a  
3 connector.

1 26. The flexible switch as set forth in claim 22, wherein the external  
2 connection member includes at least one of an edge connector terminal and a  
3 connector.

1 27. The flexible switch as set forth in claim 23, wherein the external  
2 connection member includes a wire connection circuit portion.

1 28. The flexible switch as set forth in claim 24, wherein the external  
2 connection member includes a wire connection circuit portion.

1 29. The flexible switch as set forth in claim 18, wherein the first circuit  
2 member is provided on a first face of the adhesive sheet; and  
3 wherein a second face of the adhesive sheet opposed to the first face

4 is covered with a release paper sheet.

1 30. The flexible switch as set forth in claim 18, wherein the front sheet is  
2 transparent.

1 31. The flexible switch as set forth in claim 18, wherein the front sheet is  
2 provided with an compatible external appearance portion; and  
3 wherein the compatible external appearance portion is provided on at  
4 least one of an inner face and an outer face of the front sheet.

1 32. The flexible switch as set forth in claim 18, wherein at least one flat  
2 member situated so as to correspond to the second through holes is provided  
3 on the front sheet.

1 33. The flexible switch as set forth in claim 31, wherein the front sheet is  
2 transparent; and  
3 wherein the compatible external appearance portion, formed on the  
4 inner face of the front sheet, is at least one of a printed portion and an  
5 ornamented portion.

1 34. The flexible switch as set forth in claim 31, wherein the compatible  
2 external appearance portion includes a coating layer made of a synthetic resin;  
3 and  
4 wherein the coating layer is formed on the projected portion of the front  
5 sheet.



1 35. The flexible switch as set forth in claim 31, wherein the compatible  
2 external appearance portion includes a sheet cover member and a depressing  
3 portion;  
4 wherein the sheet cover member covers the outer face of the front  
5 sheet;  
6 wherein the depressing portion is integrally formed with the sheet  
7 cover member; and  
8 wherein the projected portion is accommodated in an inner side of the  
9 depressing portion.

1 36. The flexible switch as set forth in claim 31, wherein the compatible  
2 external appearance portion includes a key top member and a cover member;  
3 wherein the key top member depresses the projected portion when the  
4 key top member is depressed; and  
5 wherein the cover member covers the outer face of the front sheet  
6 while holding the key top member.

1 37. The flexible switch as set forth in claim 18, wherein the flexible switch  
2 is attached on at least one of automotive components, and  
3 wherein the automotive mounting portions include a face of a panel, a  
4 recess portion in the panel, an opening-closing member, a front face of an  
5 accessory, and a steering wheel

1 38. The flexible switch as set forth in claim 18, wherein the front sheet  
2 serves for a bezel.